The Materials and Manufacturing Directorate, located at Wright-Patterson AFB, OH, and Tyndall AFB, FL, performs comprehensive research and development activities to provide new or improved materials, processes and manufacturing technologies for the U.S. Air Force. Additionally, the directorate integrates industry requirements with an execution program providing advanced manufacturing processes, techniques and systems for timely, reliable, high-quality, economical production and sustainment of Air Force weapon systems.

The Air Force relies heavily on in-house expertise in structural materials, nondestructive inspection, aerospace propulsion materials, sensor materials and laser-hardened materials, as well as advanced manufacturing methods to solve system, expeditionary deployment, and operational challenges. Their research includes revolutionary nanoscale and biotechnologies, as well as nonstructural materials such as coatings, fluids and greases.

Mission Statement

Plan and execute the USAF program for material and manufacturing in the areas of basic research, exploratory development, advanced development and industrial preparedness. Provide responsive support to Air Force product centers, logistics centers and operating commands to solve system and deployment related problems and to transfer expertise.

Research Areas

Accelerated Insertion Materials
Advanced Composite Processing and Behavior
Advanced Industrial Practices
Advanced Inspection Technologies
Advanced Metallics
Air Mobile Systems Research
Airbase Infrastructure Technologies
Aircraft and Spacecraft Coatings
Amorphous Metals
Analytical Chemistry Research
Atmospheric Threat Protection
Biotechnology
Ceramics and Ceramic Matrix Composites
Composites Supportability
Computational Chemistry
Corrosion Control
Electronics
Electrostatic Discharge Research
Engine Rotor Life Extension
Environmental Technologies
Firefighting Technology
Fluids, Lubricants and Tribological Research
Force Protection Reseach
Hardened Materials Technology
High cycle Fatigue
Hazardous Materials Elimination/Minimization
High Resolution Flaw/Feature Imaging
High-Temperature Superconductor Materials
Infrared Sensors and Transparencies
Laser-Hardened Materials
Magnetic and HTS Materials Processing
Manufacturing and Engineering Systems
Manufacturing Processing and Fabrication Technology
Materials Affordability Initiatives
Materials Behavior and Evaluation
Materials Life Prediction and Durability
Materials Process Design
Materials Supportability
Metallic Composites
Metal Matrix Composites
Metals Processing
Nanotechnology
Nondestructive Evaluation
Nonmetallic Composite Materials
Optical Materials
Organic Matrix Composites
Pollution Prevention Materials
Polymeric Materials
Power and Chemical Processes
Quantitative Defect Characterization
Robotics Research
Semiconductor Materials
Sensor Technologies
Solid and Liquid Lubricant Development
Structural and Electronic Failure Analysis
Superlattice and Quantum Well Materials
Surface Phenomena/Interactions
Systems Support
Thermal Protection Materials
Virtual Reality Training
Wide Bandgap Materials

Airbase Technologies Division
- Deployed Base Systems
- Force Protection
- Airbase Sciences

Integration and Operations Division
- Facilities Support
- Business Operations
- Information Support
- Technology Transfer Support
- Plans and Programs

Manufacturing Technology Division
- Processing and Fabrication
- Electronics
- Integration and Technology

Metals, Ceramics, and Nondestructive Evaluation Division
- Metals Development and Materials Processing
- Ceramics Development and Materials Behavior
- Nondestructive Evaluation

Nonmetallic Materials Division
- Structural Materials
- Nonstructural Materials
- Polymers

Survivability and Sensor Materials Division
- Hardened Materials
- Sensor Materials

Systems Support Division
- Materials Integrity
- Acquisition Systems Support
- Logistics Systems Support

Materials and Manufacturing Directorate has . . .

- *More than 85 years of aerospace materials and manufacturing research and development*
- *Over 500 scientists and engineers on in-house research staff*
- *More than one-half million square feet of modern research facilities*
- *National leadership in aerospace materials, processes, and manufacturing research*

"Aerospace Materials and Manufacturing Leadership for the Air Force and the Nation"

For more information, contact the Materials and Manufacturing Directorate's Technical Information and Support Center at techinfo@wpafb.af.mil, call (937) 255-6469 (DSN 785-6469) or visit www.afrl.af.mil

Air Force Research Laboratory

The Air Research Laboratory is made up of a diverse team of incredible people dedicated to turning the impossible into reality. With a workforce of approximately 9,600 people, the laboratory's wealth of talented individuals help AFRL lead science and technology development through in-house and contractual programs. Additionally, the laboratory out-sources approximately 75 percent of its budget to industry, academia, and the international community -- leveraging the world's knowledge to provide the most innovative science and technology to the Air Force.

AFRL maintains a diverse portfolio of science and technology ranging from basic research to advanced technology development, focusing on three specific products: targeted research to shape the future battle space, integrated technology options to satisfy identified Air Force requirements, and rapid technology solutions to meet urgent operational needs. The laboratory also plays an important role in ensuring timely, reliable, and economical production and sustainment of Air Force systems as the manager of the Air Force Industrial Preparedness Programs in manufacturing technology and industrial base analysis.

For more information on AFRL, visit www.afrl.af.mil, email public_affairs@afrl.af.mil or call (937) 656-9876.

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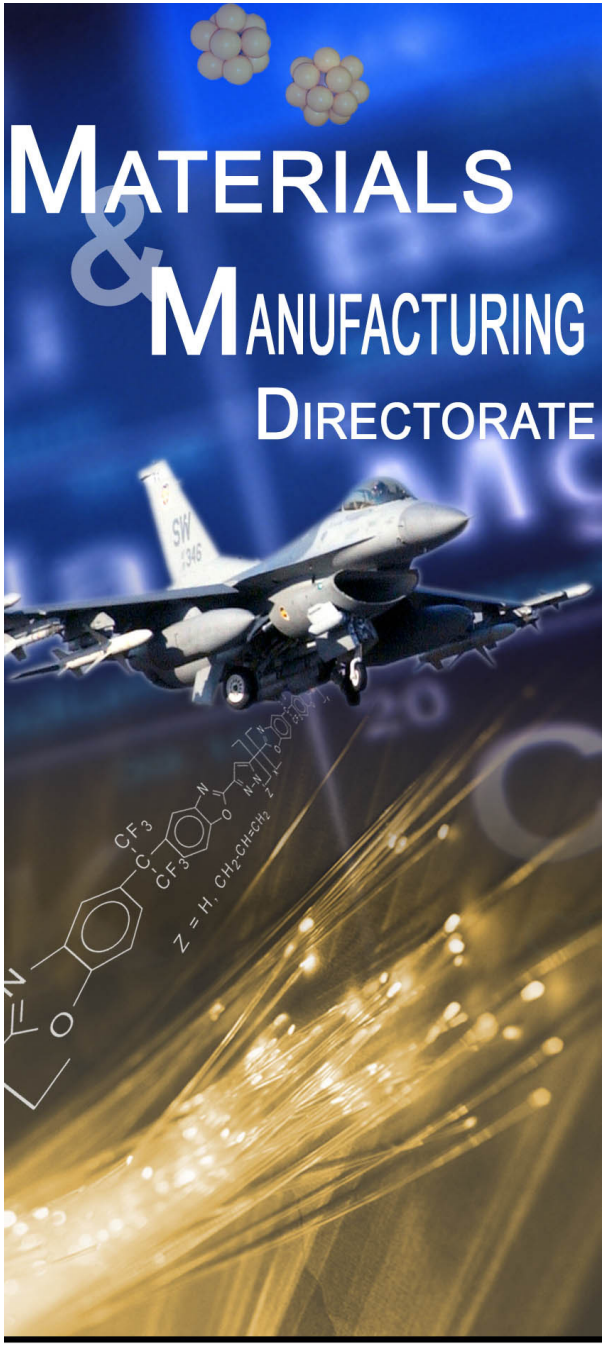
MATERIALS & MANUFACTURING DIRECTORATE



AFRL
THE AIR FORCE RESEARCH LABORATORY
LEAD | DISCOVER | DEVELOP | DELIVER